

CLAIMS

1. A removable device, which is attached/detached to/from a universal peripheral device interface of a computer executing a prescribed automatic startup script or an auto-starting program stored in a device of a specified type when the device is connected thereto and includes control means and a ROM or a read/writable storage device as its main storage device, wherein
 - the control means includes
 - 10 a plurality of unit devices including a first unit device and a second unit device,
hub means for allocating data exchange with the computer side to each of the unit devices, and
means which, upon connection to the universal peripheral device interface, first, sends a signal simulating a device of the specified type on account of the first unit device, and then, at a specified timing, sends the computer a specified signal used for accepting recognition on account of the second unit device.
- 20 2. The removable device according to claim 1, wherein:
 - the removable stores an auto-starting program invoked by the automatic startup script or the auto-starting program, and
 - 25 the auto-starting program supplies the control means an instruction that causes the computer to recognize the second unit device when a user is authenticated by password by the computer,
supplies the control means an instruction to format data in the second unit device when an incorrect password is entered a specified number of times during the authentication, and
periodically sends specified recognition extension signals to the

control means, and

the control means includes

means for executing the formatting instruction and

means for canceling the recognition of the second unit device by

5 the computer when the recognition extension signals are interrupted for
specified period of time.

3. A removable device which is attached/detached to/from a
universal peripheral device interface of a computer executing a
10 prescribed automatic startup script or an auto-starting program stored
in a device of a specified type when the device is connected thereto and
includes control means and a ROM or a read/writable storage device as
its main storage device, wherein

the removable device includes means for connecting another
15 peripheral device, and

the control means includes

means for setting up all or part of the main storage device as a
first unit device and the other peripheral device as a second unit device
and allocating data exchange with the computer side to each of the unit
20 devices, and

means which, upon connection to the universal peripheral device
interface, first, sends a signal simulating a device of the specified type on
account of the first unit device, and then, at a specified timing, sends the
computer a specified signal used for accepting recognition on account of
25 the second unit device.

4. A removable device, which is attached/detached to/from a
universal peripheral device interface of a computer and includes control
means and a ROM or a read/writable storage device as its main storage

device, wherein:

the removable device includes means for connecting another peripheral device, and

the control means includes

5 means for setting up all or part of the main storage device as a first unit device and the other peripheral device as a second unit device and allocating data exchange with the computer to each of the unit devices, and

10 means which, upon connection to the universal peripheral device interface, first, sends a specified signal used for accepting recognition on account of the first unit device, and, when a program read and executed from the recognized first unit device sends a specified cue signal, sends the computer a specified signal used for accepting recognition on account of the second unit device.

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5. The removable device according to any of claims 1 to 4, wherein the program acquires a drive letter of each of the unit devices on the computer and transmits the same to the removable device.

20 6. A removable device comprising a rewritable non-volatile memory and control means for mediating access from a USB host side to the memory, wherein:

the control means

upon connection to the host side, connects a portion of the 25 memory to the host side, and

upon reception of a specified cue signal from the host, connects another portion of the memory to the host side.

7. A control circuit mediating, as a USB client, access from a host

side via USB to a rewritable non-volatile memory, wherein
the circuit includes:
a slave side connection port for external device connection,
means for partitioned management of the memory as a plurality
5 of regions,
simulated hub means for connecting and disconnecting the
regions and external devices, which are connected to the slave side
connection port, to and from the host as a plurality of unit devices
divided by the hub, and
10 command interpretation means for detecting and executing
dedicated command sent from the host side and including at least
command for connection of any of the unit devices.

8. The control circuit according to claim 7, wherein
15 a simulated CD-ROM format-compatible region is used as one of
the regions, and
in case the host side accesses the simulated CD-ROM
format-compatible region configured in the non-volatile memory using
the CD-ROM format, the circuit performs conversion between such
20 access and access in the non-volatile memory format.

9. The control circuit according to claims 7 or 8, further comprising:
an invisible region different from the regions is provided with the
help of the partitioned management in the non-volatile memory, and
25 access to information in the invisible region is authorized exclusively
based on the dedicated command.

10. The control circuit according to any of claims 7 to 9, wherein:
the command interpretation means

detects the dedicated command when bit patterns corresponding to the parameters and type of the command are stored in a specified register region provided in the memory, and

5 places a result of command execution into a specified register region in the form of bit patterns.

11. The control circuit according to any of claims 7 to 10, wherein:

the command interpretation means detects, with respect to the dedicated command, patterns corresponding to their parameters and the 10 type of the commands from accesses to specified contents, specified file names, specified physical addresses in any of the unit devices, any of the unit devices, or the hub.

12. The control circuit according to any of claims 7 to 11, wherein at 15 least any of the following is performed in accordance with the type of the dedicated command.

- (a) connecting, disconnecting, and acquiring a status of unit devices
- (b) reading and writing information to the invisible region
- (c) reading individually specific identifying information
- 20 (d) modifying region volume
- (e) Rewriting and updating the simulated CD-ROM format-compatible region

13. The control circuit according to any of claims 8 to 12, further 25 comprising:

a switch port for switching connection of the simulated CD-ROM format-compatible region to the host side on and off.

14. The control circuit according to any of claims 8 to 13, wherein the

CD-ROM format-compatible region is connected to the host side whenever a command to initialize external devices connected to the slave side connection port is not sent from the host side within a certain time after connection to the host.

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15. The control circuit according to any of claims 6 to 14, wherein data recorded in a specified region of the non-volatile memory is encrypted and data read therefrom is decrypted.

10 16. A removable device comprising a control circuit according to any of claims 7 to 15 and a switch used to select whether a peripheral device connected to the slave side connection port is immediately connected to the host side.

15 17. The removable device according to any of claims 1 to 6 or 16, further comprising:

means for connecting a mobile phone terminal using a wired or wireless connection; and

20 means for connecting the same to a telephone network via an IP connection provided on a computer operating as a host side.

18. A firmware program for a control circuit of a removable device which is attached/detached to/from a universal peripheral device interface of a computer executing a specified automatic startup script or 25 an auto-starting program stored in a device of a specified type when the device is connected thereto and includes control means and a ROM or a read/writable storage device as its main storage device, wherein:

the program causes the control circuit

to allocate data exchange with the computer to a plurality of unit

devices including a first unit device and a second unit device, and
upon connection to the universal peripheral device interface, first,
to send a signal simulating a device of the specified type on account of
the first unit device, and then, at a specified timing, to send the
5 computer a specified signal used for accepting recognition on account of
the second unit device.

19. A firmware program for a control circuit mediating, as a USB
client, access from the host side via USB to a rewritable non-volatile
10 memory, wherein
the program causes the control circuit
to carry out partitioned management of the memory as a plurality
of regions,
to connect and disconnect the regions and external devices
15 connected to the slave side connection port used for external device
connection, to and from the host side as a plurality of unit devices
divided by the hub, and
to detect and execute dedicated command sent from the host and
including at least connection of any of the unit devices.

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20. The firmware program for a control circuit according to claim 19,
wherein the program causes the control circuit to provide an
invisible region different from the regions in the non-volatile memory
with the help of the partitioned management, and access to information
25 in the invisible region is authorized exclusively based on the dedicated
command.

21. A firmware program for a control circuit mediating, as a USB
client, access from a host side via USB to a rewritable non-volatile

memory, wherein

- the program causes the control circuit
 - to perform partitioned management of the memory as a plurality of regions and an invisible region that is different from these regions and
 - 5 has a specified password stored therein,
 - to connect, upon connection to the host side, one of the regions to the host side as a single device connected to the hub, and
 - to connect another region of the regions to the host as another device connected to the hub when a specified dedicated command is sent
 - 10 from the host side or when a password sent from the host side matches the specified password stored in the invisible region.

22. The firmware program for a control circuit according to any of claims 19 to 21, wherein

- 15 the program causes the control circuit
 - to detect the dedicated command when bit patterns corresponding to the parameters and type of the command is stored in a specified register region provided in the memory, and
 - to place a result of command execution into a specified register
- 20 region as a bit pattern.

23. The firmware program for a control circuit according to any of claims 19 to 22, wherein

- the program causes the control circuit
 - 25 to detect, with respect to the dedicated command, patterns corresponding to their parameters and the type of the commands from accesses to specified contents, specified file names, specified physical addresses in any of the unit devices, any of the unit devices, or the hub.

24. The firmware program for a control circuit according to any of claims 19 to 23, wherein

the program causes the control circuit to encrypt data recorded in a specified region of the non-volatile memory and to decrypt data read therefrom.

25. An information processing method in a control circuit of a removable device implementing any of the following: a removable device according to any of claims 1 to 6, 16, and 17, a control circuit according to any of claims 7 to 15, or a firmware program for a control circuit according to any of claims 18 to 24.

26. A circuit design pattern for a control circuit of a removable device implementing any of the following: a removable device according to any of claims 1 to 6, 16, and 17, a control circuit according to any of claims 7 to 15, or a firmware program for a control circuit according to any of claims 18 to 24.

27. A removable device which is attached/detached to/from a universal peripheral device interface of a computer executing a specified auto-starting program stored in a device of a specified type when the device is connected thereto and includes control means and a ROM or a read/writable storage device as its main storage device, wherein

the auto-starting program is stored in main storage device in advance,

the control means includes means for accepting recognition by sending the computer a signal simulating a device of the specified type upon connection to the universal peripheral device interface, and

the auto-starting program, along with causing the computer to

display, on its screen, a graphic element used for displaying a web page, causes the computer to display a corresponding web page in response to specified operations of selecting the graphic element.

5 28. The removable device according to claim 27, wherein the graphic element is stored in a specified protected storage region.

29. The removable device according to claim 2, wherein:
the specified protected storage region is realized by the control
10 means including:

hub means which, along with managing the main storage device by dividing it into a plurality of unit devices including a first unit device storing the auto-starting program and a second unit device storing the graphic elements, allocates data exchange with the computer to the unit
15 devices, and

means which, first, sends the computer a signal simulating a device of the specified type on account of the first unit device and then authorizes access to the second unit device only for as long as specified signals are sent from the automatically started auto-starting program.

20 30. The removable device according to any of claims 1 to 3, wherein the auto-starting program, based on access to a predetermined server system, acquires at least one of information identifying the web page, and information concerning the graphic elements.

25 31. A log-in method for logging in from a client system into a web server system, wherein
information specifying the web server system and log-in information for user identification and authentication utilized for logging

into the web server system is stored on the client system in advance, and, at the time of the log-in, is sent from the client system to a specified relay server, and

the relay server transfers the log-in information to the web server
5 system, and

the web server system, via the relay server, causing a web browser provided on the client system to reflect a user-specific starting URL when the user is successfully authenticated by the log-in information.

10 32. The log-in method according to claim 5, wherein updated information used for accessing a web page is sent from the relay server to the client system logged into the web server system, and

15 the client system, along with detecting the arrival of the updated information and announcing it by displaying it on screen, accepts operations for access to the web page.